

CLAIM AMENDMENTS

Cancel claims 61 through 78.

Add the following claims 79 through 110.

Claims 1-78 (canceled)

Claim 79: (New) An integrated biochip system for sample preparation or analysis, comprising one or more chips,

wherein at least one of said one or more chips is a multiple force chip; further wherein said multiple force chip comprises multiple functional elements in different structurally linked layers that are vertically oriented with respect to one another;

further wherein said multiple force chip comprises at least one particle switch;

further wherein said particle switch comprises at least three sets of electrodes that are independent of one another and can move particles along different pathways; and

further wherein said integrated biochip system can perform two or more sequential tasks, wherein at least one of said two or more sequential tasks is a processing task.

Claim 80: (New) The integrated biochip system of claim 79, wherein said multiple force chip further comprises at least one acoustic element.

Claim 81: (New) The integrated biochip system of claim 79, wherein said multiple force chip further comprises at least one electromagnetic element.

Claim 82: (New) The integrated biochip system of claim 79, wherein said multiple force chip further comprises at least one electrode.

Claim 83: (New) The integrated biochip system of claim 79, wherein said multiple force chip further comprises a traveling wave dielectrophoresis electrode array layer.

Claim 84: (New) The integrated biochip system of claim 79, further comprising at least one chamber.

Claim 85: (New) The integrated biochip system of claim 83, wherein said traveling wave dielectrophoresis electrode array layer can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave dielectrophoresis.

Claim 86: (New) The integrated biochip system of claim 79, comprising an array of electromagnetic units; wherein said array of electromagnetic units can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave magnetophoresis.

Claim 87: (New) The integrated biochip system of claim 79, wherein a sample applied to said integrated biochip system can remain continuously within said system from the beginning of the first of said two or more sequential tasks until the end of the last of said two or more sequential tasks performed by said system.

Claim 88: (New) The integrated biochip system of claim 79, wherein said integrated biochip system is automated.

Claim 89: (New) The integrated biochip system of claim 79, comprising two or more chips.

Claim 90: (New) The integrated biochip system of claim 89,
wherein at least two of said two or more chips can be, for at
least a part of the time during the operation of said integrated biochip
system, in fluid communication with one another.

Claim 91: (New) The integrated biochip system of claim 89, wherein one or more
sample components can be moved from at least one of said two or more chips to at least
one other of said two or more chips by a mechanism other than fluid flow.

Claim 92: (New) The integrated biochip system of claim 91, wherein a traveling wave
dielectrophoresis electrode array or and array of electromagnetic units can move sample
components from at least one of said two or more chips to at least one other of said two
or more chips by traveling wave dielectrophoresis or traveling wave magnetophoresis.

Claim 93: (New) The integrated biochip system of claim 79, wherein said electrodes
of said particle switch are connected at a common branch point.

Claim 94: (New) The integrated biochip system of claim 79, where in said
electrodes of said particle switch are connected out out-of-phase signals.

Claim 95: (New) An integrated biochip system for sample preparation or analysis, comprising one or more chips,

wherein at least one of said one or more chips is a multiple force chip; further wherein said multiple force chip comprises multiple functional elements in different structurally linked layers that are vertically oriented with respect to one another; further wherein said multiple force chip comprises at least one traveling wave magnetophoresis structure; further wherein said traveling wave magnetophoresis structure comprises an array of electromagnetic units such that a magnetic particle or magnetizable particle is transferred from one location to another; and further wherein said integrated biochip system can perform two or more sequential tasks, wherein at least one of said two or more sequential tasks is a processing task.

Claim 96: (New) The integrated biochip system of claim 95, wherein said multiple force chip further comprises at least one acoustic element.

Claim 97: (New) The integrated biochip system of claim 95, wherein said multiple force chip further comprises at least one electromagnetic element.

Claim 98: (New) The integrated biochip system of claim 95, wherein said multiple force chip further comprises at least one electrode.

Claim 99: (New) The integrated biochip system of claim 95, wherein said multiple force chip further comprises a traveling wave dielectrophoresis electrode array layer.

Claim 100: (New) The integrated biochip system of claim 95, further comprising at least one chamber.

Claim 101: (New) The integrated biochip system of claim 99, wherein said traveling wave dielectrophoresis electrode array layer can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave dielectrophoresis.

Claim 102: (New) The integrated biochip system of claim 95, comprising an array of electromagnetic units, wherein said array of electromagnetic units can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave magnetophoresis.

Claim 103: (New) The integrated biochip system of claim 95, wherein a sample applied to said integrated biochip system can remain continuously within said system from the beginning of the first of said two or more sequential tasks until the end of the last of said two or more sequential tasks performed by said system.

Claim 104: (New) The integrated biochip system of claim 95, wherein said integrated biochip system is automated.

Claim 105: (New) The integrated biochip system of claim 95, comprising two or more chips.

Claim 106: (New) The integrated biochip systems of claim 105, wherein at least two of said two or more chips can be, for at least a part of the time during the operation of said integrated biochip system, in fluid communication with one another.

Claim 107: (New) The integrated biochip system of claim 105, wherein one or more sample components can be moved from at least one of said two or more chips to at least one other of said two or more chips by a mechanism other than fluid flow.

Claim 108: (New) The integrated biochip system of claim 107, wherein a traveling wave dielectrophoresis electrode array or an array of electromagnetic units can move sample components from at least one of said two or more chips to at least one other of said two or more chips by traveling wave dielectrophoresis or traveling wave magnetophoresis.

Claim 109: (New) The integrated biochip system of claim 95, wherein at least one of said active chips is a particle switch chip.

Claim 110: (New) The integrated biochip system of claim 95, wherein said array of electromagnetic units can be sequentially addressed.